Claims

1. Method for assigning transmission capacity to a threshold value (b*) for traffic limiting in a communication network comprising nodes and links (l) using admission controls based on threshold values (B) on the basis of an expected traffic volume (a(b)),
wherein
- a portion of transmission capacity ($c_u(b^*)$) is assigned to the threshold value (b*) resulting in the highest probability (p_b^*) of non-admission of traffic according to the expected traffic volume (a(b*)) in the case of admission control by means of the threshold value (b*) compared to the other threshold values used in the context of admission control if an amount of spare capacity ($c_u^{free}(l)$) corresponding to said portion of transmission capacity is available on the links (l) used for the transmission of traffic admitted on the basis of the admission control.

2. Method according to claim 1,
characterized in that
- traffic distribution is performed within the network and
- an assignment of the portion of transmission capacity ($c_u(b^*)$) takes place if, on the links (l) used for the transmission of traffic admitted on the basis of the admission control, an amount of spare capacity ($c_u^{free}(l)$) corresponding to the capacity increment ($c_u^{inc} * u(l,b^*)$) reduced according to the portion ($u(l,b^*)$) transmitted over the relevant link (l) is available.

3. Method according to one of the preceding claims,
characterized in that

- the method is performed for a number of threshold values ($b \in B_{hot}$) used for admission controls, the method being executed iteratively for the threshold value(s) (b) from the set of considered threshold values (B_{hot}) having the highest probability (p_b) of non-admission of traffic, and a threshold value (b) for which an assignment of the portion of transmission capacity ($c_u(b)$) does not take place for want of spare capacity ($c_u^{free}(1)$) no longer being taken into account for subsequent iterations.

4. Method according to one of the preceding claims, characterized in that
- for a threshold value (b) to which a portion of transmission capacity ($c_u(b)$) has been assigned, the probability (p_b) of non-admission of traffic is recalculated on the basis of the total transmission capacity assigned to the threshold value (b).

5. Method according to one of the preceding claims, characterized in that
- the portion of transmission capacity ($c_u(b^*)$) for assignment to the threshold value (b^*) is set according to the portion of the expected traffic volume ($a(b^*)$) which is subjected to the admission control by means of the threshold value (b^*).

6. Method according to one of the preceding claims, characterized in that
- the portion of transmission capacity ($c_u(b)$) is set equal to a minimum link capacity increment (1) or proportional to the portion of the expected traffic volume (a(b)) which is subjected to admission control by means of the threshold value (b).

7. Method according to claim 6,
characterized in that
- the portion of transmission capacity ($c_u(b)$) is set proportional to the product of
-- the portion of the expected traffic volume (a(b)) which is subjected to the admission control by means of the threshold value (b), and
-- the quotient (q(l)) of the total spare capacity ($c_u^{free}(l)$) on a link (l) and an aggregated expected traffic volume ($a_{hot}(l)$) on that link (l).

8. Method according to claim 7,
characterized in that
- the portion of transmission capacity ($c_u(b^*)$) is set proportional to the minimum of a set of products formed according to claim 7, said set containing the products for the links used for transporting the traffic admitted on the basis of the admission control (l with $u(l,b^*) > 0$).

9. Method according to one of claims 7 or 8,
characterized in that
- the portion of transmission capacity ($c_u(b^*)$) is set equal to a product formed according to claim 7,
- the probability (p_b^*) of non-admission of traffic in the case of an admission control by means of the threshold value (b^*) after it has been assigned the corresponding portion of transmission capacity ($c_u(b^*)$) is calculated,
- for a number of further threshold values (b from $B_{hot}(l)$) used for admission controls, a portion of transmission capacity ($c_u(b)$) is analogously defined by means of the product formed according to claim 7 and the associated probability (p_b)

of non-admission of traffic in the case of admission control by means of the threshold value (b) is calculated and

- the portion of transmission capacity ($c_u(b^*)$) is decremented step by step and the corresponding probability (p_b^*) of non-admission of traffic in the case of admission control by means of the threshold value (b^*) is recalculated until the probability (p_b^*) of non-admission of traffic in the case of admission control by means of the threshold value (b^*) is greater than or equal to the calculated probabilities (p_b) of non-admission of traffic in the case of admission control by means of the further threshold values (b from $B_{hot}(l)$).

10. Method according to one of the preceding claims, characterized in that

- for a set (S) of disturbance scenarios (s) due to failure of at least one node or at least one link (l) of the communication network, a value for the portion of transmission capacity ($c_u(s,b)$) is determined and
- the portion of transmission capacity ($c_u(b)^*$) is set equal to the minimum of the determined values for the portion of transmission capacity ($c_u(s,b)$).

11. Method according to one of the preceding claims, characterized in that

- for a set (S) of disturbance scenarios (s) due to failure of at least one node or at least one link (l) of the communication network, a value for the portion of transmission capacity ($c_u(s,b)$) is determined by setting
-- the values for the portion of transmission capacity ($c_u(s,b)$) proportional to the product of

-- the portion of the expected traffic volume ($a(b^*)$) which is subject to admission control by means of the threshold value (b^*), and

-- the quotient ($q(s,l)$) of the total spare capacity ($c_u^{free}(s,l)$) on a link (l) and an aggregated expected traffic volume ($a_{hot}(s,l)$) on that link (l) in the event of the disturbance scenario (s), and

- the portion of transmission capacity ($c_u(b^*)$) is set equal to the minimum of the values determined for the portion of transmission capacity ($c_u(b^*)$).

12. Method according to claim 11,
characterized in that
the steps according to claim 11 are carried out for all the links (l with $u(l,b^*) > 0$) used for transporting the traffic admitted on the basis of the admission control and the portion of transmission capacity ($c_u(b^*)$) is set equal to the minimum of the values determined for the various links (l) and the disturbance scenarios (s).

13. Method according to one of claims 11 or 12,
characterized in that
the portion of transmission capacity ($c_u(b^*)$) is set equal to a minimum capacity increment (l) if the latter is greater than the portion of transmission capacity calculated according to claim 11 or 12.